

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/39622

## A. CLASSIFICATION OF SUBJECT MATTER

IPC: **H04J 1/16**( 2006.01)

USPC: 370/252,282,293;375/222

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 370/252,282,293;375/222

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
EAST; search terms: DSL, ADSL, line performance/condition, profile

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|------------|---|-----------------------|
| X          | US 6,647,058 B1 (BREMER et al.) 11 November 2003 (11.11.2003), col. 8, lines 58-67; col. 9, lines 1-46; col. 10, lines 24-31. | 1-3,5,11,119,20,22    |
| Y          |   | 12,13                 |
| A          | US 2003/0218984 A1 (TANAKA) 27 November 2003 (27.11.2003), page 3, paragraphs 47-55.  | 1 and 19              |
| A          | US 6,219,378 B1 (WU) 17 April 2001 (17.04.2001), col. 3, lines 5-47.  | 1 and 19              |



Further documents are listed in the continuation of Box C.



See patent family annex.

|   |  |
|---|--|
| * Special categories of cited documents:  |  |
| "A" document defining the general state of the art which is not considered to be of particular relevance  | "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  |
| "E" earlier application or patent published on or after the international filing date   | "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone   |
| "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art |
| "O" document referring to an oral disclosure, use, exhibition or other means  |  |
| "P" document published prior to the international filing date but later than the priority date claimed  | "&" document member of the same patent family  |

Date of the actual completion of the international search

02 October 2006 (02.10.2006)

Date of mailing of the international search report


31 OCT 2006

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (571) 273-3201

Authorized officer

Rhonda Murphy 

Telephone No. (571) 272-3185

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/04386

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - H04L 12/66 (2007.01)

USPC - 370/352

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8) - H04L 12/66; H04J 3/04; H03M 5/12; G06F 15/173 (2007.01)

USPC - 370/352, 485, 532, 260; 375/17, 18, 20, 260, 219; 714/736, 737, 724, 699, 47, 48

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PatBase, MicroPatent

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| X         | US Re. 36,862 E (GUPTA et al) 12 September 2000 (12.09.2000), entire document.     | 1, 2, 5, 8-12, 14-19  |
| Y         |  | 3, 4, 6, 7, 13, 20-22 |
| Y         | US 2004/0193974 A1 (QUAN et al) 30 September 2004 (30.09.2004), entire document.   | 3                     |
| Y         | US 6,798,769 B1 (FARMWALD) 28 September 2004 (28.09.2004), entire document.        | 4                     |
| Y         | US 6,865,232 B1 (ISAKSSON et al) 08 March 2005 (08.03.2005), entire document.      | 6, 13                 |
| Y         | US 6,816,469 B1 (KUNG et al) 09 November 2004 (09.11.2004), entire document.       | 7, 20-22              |
| A         | US 6,175,832 B1 (LUZZI et al) 16 January 2001 (16.01.2001), entire document.       | 1-22                  |

☐ Further documents are listed in the continuation of Box C.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

30 April 2007

Date of mailing of the international search report

08 AUG 2007

Name and mailing address of the ISA/US

Mall Stop PCT, Attn: ISA/US, Commissioner for Patents  
P.O. Box 1450, Alexandria, Virginia 22313-1450  
Facsimile No. 571-273-3201

Authorized officer:

Blaine R. Copenheaver

PCT Helpdesk: 571-272-4300  
PCT OSP: 571-272-7774